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Romulea alticola and *Romulea monophylla* (Iridaceae: Crocoideae), two new species from Western Cape, South Africa

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ABSTRACT

Two new species of *Romulea* are described from the Cape Floristic Region: *Romulea alticola* (subgenus *Romulea*) from the Jonkershoek Mountains has purple flowers with an orange cup and diagnostic papery, almost fibrous corm tunics; and *Romulea monophylla* (subgenus *Spatalanthus*) from the Cedarberg has a solitary leaf and orange flowers with submembranous outer and inner bracts with colourless margins. We provide descriptions, illustrations and notes on distribution and ecology.

1. Introduction

Romulea maratti, one of the larger genera of Iridaceae (Goldblatt and Manning, 2008), is widespread throughout Africa, southern Europe and the Middle East but is strongly centred in the winter-rainfall region of southern Africa, where 80% of the ±97 known species occur (Manning et al., 2011). Species favour temperate, seasonally moist, open habitats.

The genus has been well-studied in sub-Saharan Africa in the past half century, starting with the fine monograph by De Vos (1972) and a subsequent floristic account (De Vos, 1983) in which 70 species were recognised in South Africa. This was followed by a conspectus of the genus for sub-Saharan Africa by Manning and Goldblatt (2001) enumerating 76 species, several of them newly described, and lately by descriptions of an additional seven South African species (Manning and Goldblatt, 2004, 2006, 2008; Manning et al., 2011). This brought to 83 the number of species recognised in sub-Saharan Africa.

During preparation of a new account of the genus for the *Flora of southern* Africa, we came across herbarium material of two unnamed species from the winter-rainfall Western Cape, which we describe here, thus increasing the number of species in the genus to 99, of which a total of 83 species occur in southern Africa.

Romulea monophylla J.C.Manning & Goldblatt is described for a single collection of an orange-flowered member of subgenus *Spatalanthus* (Sweet) Baker from the Cedarberg, distinguished by its solitary leaf, herbaceous outer bracts and entirely membranous inner bracts. The second species, *Romulea alticola* J.C.Manning & Goldblatt from the Jonkeshoek Mountains with purple flowers, is slightly better known from two collections, and is distinctive in subg. *Romulea* in its softly papery, almost fibrous corm tunics. Its exact relationships are not clear but the tunics fragmenting into narrow teeth rather than fibrils suggest an alliance with *Romulea autumnalis* L.Bol. and *Romulea camerooniana* Baker in sect. *Roseae* (Bég.) M.P.de Vos (1983). *R. alticola* is, however, anomalous in the section in its aerial stem and in the absence of sclerenchyma strands in the leaf rib margins.

Keys to the species and a modified classification for the genus will form part of the flora treatment that is in preparation and are thus not included here.

2. Materials and methods

The new species were described from herbarium material housed at the Compton Herbarium, SA National Biodiversity Institute, Cape Town (NBG) and the National Herbarium, SA National Biodiversity Institute, Pretoria (PRE), the primary collections of material from southern Africa. Leaf anatomy was examined by rehydrating a tissue fragment in 30% ethanol to which a drop of commercial detergent had been added, fixing in FAA, dehydrating through an ethanol series, and embedding in paraffin wax following standard anatomical procedures.

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Fig. 1. *Romulea alticola* J.C.Manning & Goldblatt, plants scanned from *Kerfoot 6010* (NBG, holo.), including enlarged detail of corm. Scale bar: 10 mm.

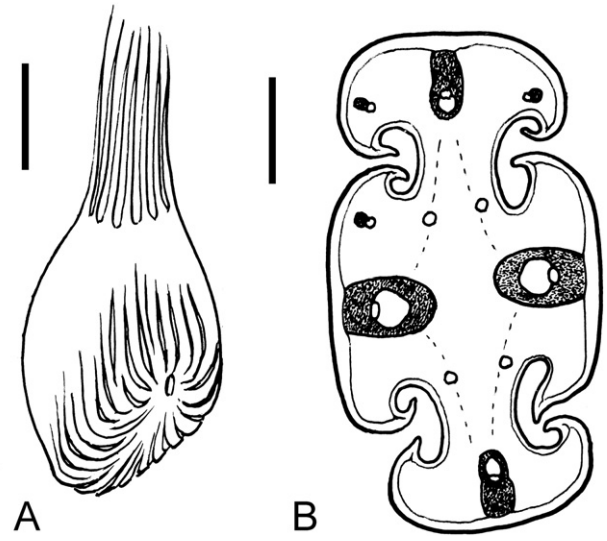

Fig. 2. *Romulea alticola* J.C.Manning & Goldblatt, corm and leaf anatomy. A. Corm showing soft, almost papery tunics fragmenting into narrow, bent teeth. Scale bar: 3 mm; B. transverse section of leaf, showing the vascular sclerenchyma bundles extending to the epidermis as girders, and the absence of rib marginal sclerenchyma strands. Scale bar: 0.25 mm.

The shape of the corm and the manner in which the tunics fragment are critical in determining relationships among the species, and details of the leaf anatomy provide additional important characters in some groups of species (De Vos, 1972; Manning and Goldblatt, 2001).

3. Taxonomy

3.1. R. alticola J.C.Manning & Goldblatt, new species. Type: South Africa, Western Cape, Jonkershoek, lower slopes, Oct. 1967, Kerfoot 6010 (NBG, holo.; PRE, iso.).

Plants 50–100(−200) mm high. *Corm* ovoid, 5–7 mm diam., obliquely pointed with small basal ridge, tunics papery, split into slender teeth below, accumulating in a fibrous mass and extending upwards in a softly fibrous neck. *Stem* usually exserted up to 50 mm. *Leaves* (2)3 or 4, lower (1)2 basal, terete-filiform, narrowly 4-grooved, 0.5–1.0 mm diam., without sclerenchyma strands in rib margins. *Peduncles* up to 3, subterete-angled; outer bracts green with narrow, colourless membranous margins, 10–16 mm long, laxly ribbed (±5 veins/mm) with papillate grooves between ribs, inner bracts with wide, brown-speckled membranous margins. *Flowers* purple with orange-yellow cup, outer

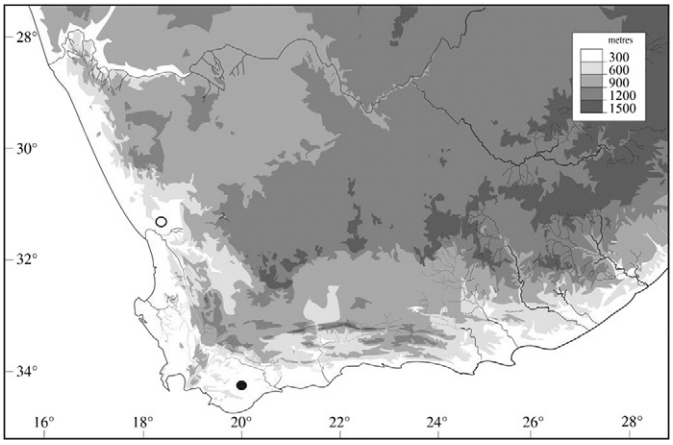

Fig. 3. Distribution of *Romulea alticola*, ●; and *R. monophylla*, ○.

Fig. 4. *Romulea monophylla* J.C.Manning & Goldblatt, plants scanned from *C.M. van Wyk 2539* (PRE, holo.). Scale bar: 10 mm.

tepals pale green with purple feathering on reverse; perianth tube funnel-shaped, ±4 mm long; tepals oblanceolate to elliptic, 14–20 × 4–6 mm. *Stamens* inserted in lower half of tube, shortly exserted from cup; filaments ±5 mm long, puberulous or pilose basally; anthers ±4 mm long, yellow. *Style* dividing just below anther apices, branches ±1.5 mm long, shortly divided. *Capsules* unknown. *Flowering time*: Sept.–Oct. (Figs. 1 & 2)

Distribution and ecology: known from two collections from the Jonkershoek Mountains above Stellenbosch in Western Cape (Fig. 3), the one collection from a shale band at 1 500 m and the second collection from a lower elevation.

Diagnosis and relationships: distinctive in its softly papery corm tunics splitting at the base into slender teeth curved over a small basal ridge, the tunics becoming almost fibrous with age and forming a softly fibrous neck above. The bracts are also unusual in having prominently ridged veins separated by wide, distinctly papillate stomatiferous grooves, and the flowers are purple with an orange-yellow cup.

The unique corm tunics make relationships difficult to assess but we provisionally associate the species with *R. autumnalis* and *R. camerooniana* on account of the tunics splitting below into slender teeth bent over a small basal ridge. The exserted stem and the absence of rib marginal strands in the leaves are, however, anomalous among these species.

Conservation notes: although highly localised, the species occurs within a formal conservation area and is under no evident threats.

Additional specimen:

SOUTH AFRICA: Western Cape, Jonkershoek State Forest, Victoria Peak, just below shale band, 5000′ [1 500 m], *G. Forsyth 183* (NBG).

3.2. R. monophylla J.C.Manning & Goldblatt, new species. Type: South Africa, Western Cape, Cedarberg, 4 km before Farm Sederberg, fynbos on sand, 12 Aug. 1986, C.M. van Wyk 2539 (PRE, holo.).

Plants 100–150 mm high. *Corm* globose, ±10 mm diam., rounded or crested below, tunics woody, split into bent, grooved teeth below. *Stem* subterranean. *Leaf* solitary, basal, terete, narrowly 4-grooved, ±1 mm diam. *Peduncle* solitary, semi-terete, reddish brown; outer bracts green or flushed brown, with scarcely visible, colourless membranous margins, 15–22 mm long, ribbed above (±6 veins/mm), inner bract ± entirely membranous or distal half with narrow herbaceous central portion, with purple or green veins in centre and wide, colourless margins. *Flowers* orange, evidently with dark lines in throat, outer tepals finely feathered and marbled with brown on reverse; perianth tube funnel-shaped, 6–7 mm long; tepals oblanceolate to elliptic, 20–22 × 6–8 mm. *Stamens* inserted near base of tube; filaments ±8 mm long, pilose in lower half, yellow; anthers ±8 mm long, yellow. *Style* dividing opposite middle of anthers, branches 2 mm long, divided halfway. *Capsules* unknown. *Flowering time*: Aug. (Fig. 4)

Distribution and ecology: known from a single collection of three plants from the Farm Sederberg in the Cedarberg (Fig. 3), Western Cape, where it was recorded as rare in sandy soil in fynbos.

Diagnosis and relationships: the rounded corm with tunics splitting at the base into coarse, grooved teeth bent at the tips place the species in subgenus *Spatalanthus* (Manning and Goldblatt, 2001), where its relationships may lie with species such as *Romulea eburnea* J.C.Manning & Goldblatt and *Romulea malaniae* M.P.de Vos, with which it shares a reduced number of leaves, and yellow to orange flowers with membranous inner bracts, and outer bracts with narrow, scarcely visible membranous margins. Among these species it is distinguished by the herbaceous (vs membranous) outer bracts, and strictly solitary (vs 1 to 4) leaf. The fruiting pedicels in both *R. eburnea* and *R. malaniae* coil up characteristically in fruit but this character is unknown for *R. monophylla.* Other yellow-flowered species in the subgenus all have several leaves, ± herbaceous inner bracts with broad membranous margins, and outer bracts often with evident, brown-speckled membranous margins.

Conservation notes: the species is known from a single collection in an agricultural area and its conservation status needs to be investigated.

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